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### Reduced Space Symbology (RSS)

#### RSS Symbology Introduction

The EAN.UCC Reduced Space Symbology (RSS) family contains three linear symbologies to be used with the EAN.UCC system. The use of the symbology is restricted and subject to compliance with the EAN International (EAN) and Uniform Code Council, Inc. (UCC) rules and registration procedures.

RSS-14 encodes the full 14-digit EAN.UCC item identification in a linear symbol that can be scanned omnidirectionally by suitably programmed point-of-sale scanners. RSS Limited encodes a 14-digit EAN.UCC item identification with Indicator digits of zero or one in a linear symbol for use on small items that will not be scanned at the point-of-sale. RSS Expanded encodes EAN.UCC item identification plus supplementary AI element strings such as weight and "best before" date in a linear symbol that can be scanned omnidirectionally by suitably programmed point-of-sale scanners.

EAN.UCC RSS bar code symbols are exclusively reserved for encoding identification numbers and data supplementary to the identification. The administration of the numbering system by EAN and UCC ensures that identification codes assigned to particular items are unique worldwide and that they and the associated supplementary data are defined in a consistent way. The major benefit for the users of the EAN.UCC system is the availability of uniquely defined identification codes and supplementary data formats for use in their trading transactions.

RSS-14 Stacked is a variation of the RSS-14 symbology that is stacked in two rows and is used when the normal symbol would be too wide for the application. It comes in two versions, a truncated version used for small item marking applications and a taller omnidirectional version which is designed to be read by omnidirectional scanners. RSS Expanded can also be printed in multiple rows as a stacked symbol.

Any member of the RSS family can be printed as a stand-alone linear symbol or as a Composite symbol with an accompanying 2D Composite Component printed directly above the RSS linear component.

#### RSS Symbology characteristics

The characteristics of the RSS family are:

##### a. Encodable character set:

1. RSS-14 and RSS Limited: 0 through 9
2. RSS Expanded: a subset of ISO 646, consisting of the upper and lowercase letters, digits, and 20 selected punctuation characters in addition to the special UCC/EAN function character, FNC1

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b. Symbol character structure: different (n,k) symbol characters are used for each member of the family

c. Code type: Continuous, linear bar code symbology

d. Maximum numeric data capacity (including implied application identifiers where appropriate, but not including any encoded FNC1 characters):

1. RSS-14 and RSS Limited: application identifier "01" plus a 14-digit numeric item identification
2. RSS Expanded: 74 numeric or 41 alphabetic characters

e. Error detection:

1. RSS-14: mod 79 checksum
2. RSS Limited: mod 89 checksum
3. RSS Expanded: mod 211 checksum

f. Character self-checking: Yes

g. Bi-directionally decodable: Yes

Summary of additional RSS features

The following is a summary of additional EAN.UCC RSS family features:

a. Data compaction: Each member of the family has data compaction methods optimized for the data strings that they will encode. RSS Expanded is optimized for specific combinations of application identifiers that are commonly used.

b. Component linkage: Each RSS symbol contains a linkage flag which, if set, indicates to the reader that a 2D Composite Component is adjacent to the RSS family linear component.

c. UCC/EAN-128 emulation: Readers set to the UCC/EAN-128 emulation mode transmit the data encoded within the RSS family symbol as if the data were encoded in one or more UCC/EAN-128 symbols.

#### **RSS Symbol structure**

Each RSS symbol contains outside guard patterns, symbol characters, and finder patterns. Every symbol includes error detection.

The guard patterns consist of two one-module wide elements forming either a bar/space or a space/bar pair at each end of the symbol. RSS-14 Stacked and RSS Expanded Stacked symbols have guard patterns at the ends of each row of the symbol.

Every symbol has two or more data characters, each with an (n,k) structure, where n is the number of modules and k is both the number of bars and the number of spaces comprising the data character. The data characters values are combined mathematically to form the explicitly encoded data.

The finder pattern is a set of elements selected to be identifiable by the decoder so that the symbol can be recognized and the relative position of the elements can be determined. Each symbol contains one or more finder patterns. The finder patterns also function as the check character and/or segment identifiers.

#### **Examples of RSS symbols**

RSS-14 symbol representing 20012345678909 and a linkage flag of 0



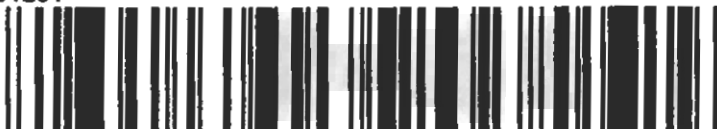
RSS-14 Truncated symbol representing 00012345678905



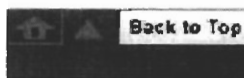
RSS-14 Stacked symbol representing 00012345678905



RSS Expanded symbol representing (01)98898765432106(3202)012345(15)991231



RSS Expanded Stacked symbol representing (01)98898765432106(3202)012345(15)991231



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